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IN THE CLAIMS:

This listing of claims replaces all prior versions, and listings, of the claims in the application:

1. (Canceled)
2. (Currently Amended) The disk drive according to ~~claim 1~~ claim 8, wherein
the read head element is configured to have a linear magnetic field response ~~within a range that is larger than an average value of reproduction magnetic field from the disk medium, said range corresponding to a range of magnetic field in which an~~ output voltage is proportional to an input magnetic field strength and linearity of the magnetic field response is secured.
3. (Currently Amended) The disk drive according to ~~claim 1~~ claim 8, wherein
the read head element ~~has is configured to have~~ a maximum magnetic field value (H_s) at which the output voltage starts saturating with increased input magnetic field strength, ~~the maximum magnetic field value being larger than the~~
the read head element is configured to have an average magnetic field (H_{mu}) from the disk medium magnetized uniformly to any one of positive and negative polarities, and
 H_s is greater than H_{mu} .
4. (Currently Amended) The disk drive according to ~~claim 1~~ claim 8, wherein
the read head element is configured to have a maximum magnetic field value (H_{opmax}) at which an output voltage starts departing from the linear magnetic field response, ~~is larger than the~~
the read head element is configured to have an average magnetic field (H_{mu}) from the disk medium magnetized uniformly to any one of the positive and negative polarities, and
 H_{opmax} is greater than H_{mu} .

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5. (Currently Amended) The disk drive according to ~~claim 1~~ claim 8, wherein

~~the read head element further includes an artificial antiferromagnetic coupling magnetic field larger than the maximum magnetic field created by the magnetic flux that comes from the disk medium magnetized uniformly to any one of the positive and negative polarities is configured to have a maximum magnetic field (Hmax) from the disk medium magnetized uniformly to any one of the positive and negative polarities,~~
the read head element is configured to have an artificial antiferromagnetic coupling magnetic field (Hex), and
Hex is greater than Hmax.

6. (Currently Amended) The disk drive according to ~~claim 1~~ claim 8, wherein

~~the read head element is configured to have the read head element, assuming that an artificial antiferromagnetic coupling magnetic field is field Hex,~~
the read head element is configured to have a shield gap length is length Gs,
the disk drive is configured to have a distance from the read head element to the surface of the recording magnetic layer is layer dmag, and
the recording magnetic layer is configured to have remnant magnetization of the recording magnetic layer is layer Mr,
~~has a characteristic satisfying a relational expression "Hex is >~~ Hex is greater than $8Mr * \arctan[Gs/(2dmag)]$.

NOTE: Please note that the brackets in claim 6 are part of the equation and are not intended to indicate the cancellation of subject matter from the claim.

7. (Currently Amended) The disk drive according to ~~claim 1~~ claim 8, wherein

the disk medium further includes a bias magnetic field applying layer that is configured to fix a magnetization direction of the soft magnetic layer, and
the read head element further includes a hard magnetic film configured to generate a longitudinal bias magnetic field, a direction of the longitudinal bias for

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determining an operating point of the read head element being in the same direction as a magnetic field received from the bias magnetic field applying layer.

8. (Currently Amended) ~~The disk drive according to claim 1, a~~
perpendicular magnetic recording type disk drive comprising:
a double-layered perpendicular magnetic type disk medium having a recording
magnetic layer of perpendicular magnetic anisotropy and a soft magnetic layer; and
a magnetic head containing a read head element configured to read data from
the disk medium.

wherein the read head element is a spin-valve type giant magnetoresistive
(GMR) element having a hard magnetic field film for longitudinal bias and has a
characteristic that a ratio between a product Mst of magnetization and film thickness
of a free layer and a product Mrt of remnant magnetization and film thickness of the
hard magnetic film (Mrt/Mst) is set to 3 or more, such that, in response to a magnetic
field from the disk medium, the GMR outputs a signal waveform substantially
without distortion.